



Collaborative Action Research Application of Socratic Methods in Learning in Primary School

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The purpose of this research is to apply the socratic method in learning in elementary schools. The research method used is research and development, which is modified into three stages. First, is a preliminary study related to the teacher's learning process at school. Second, is the development of socratic methods in elementary schools, which are validated by experts and practitioners. Thirdly, the application of the test socratic method was limited to one UPI laboratory school to determine the strengths and weaknesses of the socratic method, and to test the wider socratic method at the SD laboratory of the regional campus of the Indonesian University of Education.

Keywords: scaffolding, scaffolding automation electronics.



Introduction

The quality of teachers in carrying out the learning process is one of the fundamental and important aspects allowing students to have optimal ways of thinking, doing and acting. Holistically, the quality of the teacher is an integral part of the environment with the aim of encouraging students to have good and correct learning outcomes and will even encourage changes in the psychological dynamics of students who like their learning activities (Collins, 2010).

The teaching and learning process is not merely a transfer of knowledge (Fest, U, 2016) but is a process of changing behaviour. Teaching is the same as changing behaviour, and teaching is the same as guiding. A good teacher is a good guide. The teacher's job is not only to convey the subject matter but to also guide behavioural change; the educator is the same as a supervisor.

Education and teaching are goal-conscious processes. The purpose can be interpreted as an effort to provide the formulation of the results expected by students after carrying out a learning experience (Sadirman, 2004). At least one of the teaching objectives achieved is seen from the student's achievement in achievement. With a high achievement, students have obtained a good knowledge indication. One of the factors that influences student achievement is motivation. With motivation, students will study harder, be persistent, have a strong mind and have full concentration in the learning process. Motivation in learning is one of the things that should be raised in the effort to learn in school. According to the research by Wasty Soemanto (2003), the introduction of a person to his learning achievement is important, because by knowing the results that have been achieved by students, they will try to improve their academic achievement. Thus, increasing student achievement can be more optimal because these students feel motivated to improve student achievement that has been previously achieved. Giggs and Tefler in (Dimiyati, 2006) reveal that student motivation can be weak. Weak motivation or a lack of learning motivation will weaken activities, so the quality of learning achievement will be low. Therefore, the quality of student learning achievement needs to be continually strengthened. With the aim that students have a strong learning motivation, the learning achievement achieved can be optimal. The motivation of learning that students have in each learning activity is very instrumental to improve the student achievement in certain subjects (Nashar, 2004). Students who are highly motivated in learning will be enabled to obtain high learning outcomes, meaning that the higher the motivation, the greater the intensity of the effort made, the higher the learning achievement they receive.

One approach that can be used by teachers to improve motivation and learning outcomes is understanding the elements of short stories, which is a scientific approach to learning. Learning with a scientific approach is a learning process that is designed so that students



actively construct concepts, laws or principle through the stages of observing to identify or find a problem, formulate a problem, propose or formulate a hypothesis, collect data with various techniques, analyse data, draw conclusions and communicate concepts, laws or principles that are 'discovered'. The scientific approach is intended to provide understanding to students in knowing and understanding various materials using a scientific approach, that information can come from anywhere and at any time, not depending on the direction of the information from the teacher. Therefore, the expected learning conditions created are directed to encourage students to discover from various sources through observation and not just to be informed (Kemendikbud, 2013). The application of a scientific approach to learning involves process skills such as observing, classifying, measuring, predicting, explaining, and concluding. In carrying out these processes, teacher assistance is needed. However, the teacher's assistance must decrease with increasing student maturity or the higher class of students. Vygotsky, in theory, states that learning occurs when students work or learn to handle tasks that have not been studied but the tasks are still within the reach of ability or the task is in the zone of the proximal development. The area lies between the current level of child development, which is defined as problem-solving abilities under the guidance of more capable adults or peers (Nur & Wikandari, 2000).

Learning with scientific methods has the following characteristics: 1) is student-centred; 2) involves science processes in constructing concepts, laws or principles; 3) involves potential cognitive processes in stimulating the development of intellect, especially students' high-level thinking skills; and 4) can develop student character. Of the several advantages of the scientific approach above, it is certain that the learning process will be able to help increase student motivation and learning outcomes. Therefore, the authors apply a scientific approach to improve student motivation and learning outcomes in understanding the elements of a short story. Motivation to learn is the overall driving force within students that gives rise to learning activities, which ensures continuity of learning activities and gives direction to learning activities so that the desired goals of the learning subject are achieved (Sardiman, 1998). Therefore, learning motivation can determine the level of student success and motivation becomes one of the factors that determines the effective learning process. In turn, it can improve learning outcomes and understanding of the elements of short stories. Language Learning in elementary schools is essentially to familiarise and develop the ability of students as early as possible to communicate well and correctly. In this case, it means that every student is required to be able to master the language, both as subject matter and as a means of communication in teaching and learning activities. It is the key language for success in learning other fields of study (Arkün & Akkoyunlu, 2008). This can be interpreted that language has a very important role in learning other fields of study and in interacting with the environment, both between students and other students and between students and teachers. Further, one way to get students to communicate and to be able to understand and interact with their environment is by applying literary learning from an early age.



In practice the quality of teachers in teaching still shows a condition that is weak and not optimal, even if left to have an impact on student learning outcomes in school. Between 2010–2017 the results of the study were non-formal; some teachers in the city of Bandung showed weak quality of learning; performance saw the teachers' teaching as less interesting or monotonous; there was a weak application of innovation and creativity in using teaching techniques; teachers had difficulty in the learning of affective, cognitive, and psychomotor aspects in the classroom; the assessment of learning outcomes were still cognitive; and the emergence of errors in evaluating affective and psychomotor aspects. Even the low level of teacher mastery in the teaching and learning process, triggered by stereotypes in interpreting the teaching and learning process. The teachers generally view the teaching and learning process as a knowledge transfer. As a result, the teacher likes to use the lecture method in implementing the learning process.

The quality of teachers in teaching is a determinant of student success. Even the results of research into educational behaviour such as teaching styles, teaching strategies, and ways of handling in the learning process are controlled as a correlational variable to minimise the impact of weak teacher quality and student learning outcomes. It was confirmed from several results of research in the field (Friederichs, Bolman, Oenema, & Lechner, 2015; Hagger, 2015; Hein, Koka, & Hagger, 2015; Reeve & Jang, 2006; Ryan & Deci, 2000) which show that teaching styles, teaching strategies and the behaviour of educators in interacting can control positive student behaviour and help students have autonomous behaviour and optimal independence.

Learning is a series of physical and mental activities to obtain a change in behaviour as a result of an individual's experience in the interaction with his environment concerning the cognitive, affective, and psychomotor aspects (Hamdu & Agustina, 2011; Slamet, 2003). In learning, students experience their own processes from not knowing to knowing. Surya (2004) revealed that learning is a process of change, which is a change in behaviour as a result of interaction between himself and his environment in meeting his life needs. In full, learning can be formulated as follows: "learning is a process carried out by individuals to obtain new changes in behavior as a whole, as a result of the experience of individuals themselves in interaction with their environment".

Efforts to improve the quality of teachers in the learning process included through basic models that used the model ESEM, the model of clinical-based learning, a model of participation and performance processes, models of teaching preferred and non-preferred ways, a model for interpersonal teacher behaviour rooted in the holistic model theory knowledge creation, and accidental theory. However, to encourage the development of creativity, innovation and achieving practical experience, reflecting, asking questions and internalising student experiences, teachers can construct learning models developed in the Socratic method. It is emphasised that the overall learning process must consistently grow



the process of exploring and interpreting educational tips as the basis for professional educator actions in helping individuals (Kartadinata, 2011).

The basis for consideration is using the Socratic method. Namely, the Socratic method is a learning method that accommodates three types of learning: cognitive, emotional and physical. The Socratic method is often also called the method of debriefing (Rusmana, 2009); both methods refer to experimental learning where students can actually teach themselves by answering questions presented by the mentor or instructor. The Socratic method focusses on the experiences that have been experienced and reflected, and is then rearranged so as to form new principles or abstract concepts (finding out process) that will be a guide for the creation of experience or taking action of the expected processes.

Literature Review

Teaching and learning are educational activities. Educational values colour the interaction that occurs between the teacher and students. Educative value in interaction is due to the teaching and learning activities carried out and is directed to achieve certain goals that have been formulated before the teaching is complete (Djamarah, 2002). In the world of education, the role of the teacher is very important; the teacher is required to have competence that is the ability to teach (Usman, 2002). Teacher competence is the ability of a teacher to carry out obligations properly (Usman, 2002). The influence of teacher competence in the teaching and learning process in the classroom, and the teacher facilities on good student motivation, should be available with adequate learning facilities which include learning spaces, adequate lighting, handbooks, and equipment completeness. Thus, the principle of learning facilities is everything that makes it easy to learn. Teacher competence and learning facilities are very important in teaching and learning activities in schools; it is expected that students will have the motivation to learn. Motivation plays an important role in providing passion or enthusiasm for learning.

Teacher competence is the ability and authority of teachers in carrying out the teaching profession (Muhibbin & Ed, 1995). Teacher competence is important in relation to student activities and learning outcomes. The learning process and student learning outcomes are not only determined by the school, its patterns, structure, and curriculum content, but are largely determined by the competence of the teacher who teaches and guides them. According to Suryosubroto (2002), the teaching and learning process includes the activities carried out by teachers and ranges from planning and the implementation of activities to the evaluation and follow-up programs that take place in educational situations to achieve certain goals, namely teaching.

The success of a teacher in carrying out his role in the education sector largely lies in his ability to carry out various roles that are specific to the teaching and learning situation. There



are ten teacher competencies according to P3G, namely: (1) mastering materials; (2) managing teaching and learning programs; (3) managing classes; (4) using media or learning resources; (5) mastering educational foundation; (6) managing interactions in teaching and learning; (7) assessing learning achievement; (8) recognising the functions and guidance services of counselling; (9) recognising and organising school administration; and (10) understanding and estimating research results for teaching purposes. If examined, eight of the ten competencies mentioned above cover only two areas of teacher competence; namely, cognitive competence and behavioural competence. Competency attitude, especially teacher professional competence, is not visible. Sudjana (2004) argues that for the needs of the teacher's duties as a teacher, the teacher's ability or the teacher's competence — which has a lot to do with improving the process and learning outcomes — it can be grouped into four abilities. Namely, planning teaching and learning programs, implementing or managing the teaching and learning process, assessing the progress of the teaching-learning process, and mastering the subject matter.

The capability to manage the teaching and learning process requires the ability to formulate instructional goals, the ability to recognise and use teaching methods, the ability to choose and arrange appropriate instructional procedures, the ability to recognise students' potentials and plan and implement reassessment teaching (Wijaya, 1991). According to Suparno (2001), the task of the teacher as an educator and instructor has several competencies or abilities that are appropriate, such as personality competencies, fields of study, and education or learning. The competence must always be developed and processed so that the higher, with high competence, teachers are expected to be able to do their vocation better and more responsibly.

Facility is a facility that helps smooth and ease the implementation of a business. According to Gie (2002) in his book *Efficient Learning*, for good learning there should be adequate learning facilities, including learning spaces, adequate lighting, and handbooks. Thus, the principle of learning facilities is everything that makes it easy to learn. Gie (2002) describes aspects of learning facilities as an adequate and comfortable place or learning space, adequate lighting, handbooks that support student understanding, and learning equipment.

Motivation is a change of energy in a person which is marked by the emergence of feelings and reactions to achieve goals (Hamalik, 2001). According to Bahri and Corebima (2015), learning motivation is the overall psychic driving force within students and raises learning activities, ensuring the continuity of learning activities and achieving goals. Motivation is a factor that determines and functions to cause, underlie, and direct the act of learning. Motivation can determine whether or not goals are achieved; the greater the motivation, the greater the success, whereas weak motivation results in students having learning difficulties. The most important function of motivation is as a driver of activity, as a director, and as a driver for doing work (Djamarah, 2002).



Motivation is a change of energy in an individual which is marked by the appearance of taste and is preceded by response to a goal. From this understanding, it contains three important elements (Grossman, Hammerness, & McDonald, 2009): 1) That motivation initiates energy changes in every individual. The development of motivation will bring some energy changes in the 'Neurophysiological' system that exists in individuals. Because of concerning changes in human energy (though motivation arises from within human beings), appearance will involve human physical activities; 2) Motivation is characterised by the appearance, taste, and affection of individuals. In this case, motivation is relevant to the issues of psychiatric, affection and emotions that can determine human behaviour; 3) Motivation will be stimulated because of goals. Therefore, motivation in this case is actually a response from an action that is a goal. Motivation does emerge from within human beings, but their appearance is because of and driven by the existence of other elements; in this case, the aim. This goal will concern the needs; 4) Motivation can also be said to be a series of efforts to provide certain conditions, so individuals want to do something, and if they don't like it, they will try to negate or avoid the feeling of dislike. According to Hamalik (Djamarah, 2002), motivation is a change in the energy of a person in the form of a real activity or physical activity. Because someone has a purpose and is certain of their activities, then someone has a strong motivation to achieve with all the efforts he can muster. This motivation can be stimulated by outside factors but is growing in the individual; 5) Learning is generally interpreted as a process of change in the individual behaviour after learning an object (knowledge, attitude, and skills). Good and Brophy in Japkowicz and Shah (2011) state that learning is an interaction process carried out by individuals to get something new in the form of a change in behaviour as a result of the experience or learning itself.

The change in behaviour is evident in the assignment of students to new response patterns (responses) to the environment in the form of skills, habits, attitude, ability, knowledge, understanding, emotion, appreciation, physical, and ethics or manners, as well as social relations. Learning, as a change in the relative individual behaviour, tends to remain as a result of reinforcement.

Thus, learning is the acquisition of new experiences by individuals in the form of changes in behaviour that are relatively sedentary, as a result of the process in the form of learning interactions of an object (knowledge) or through a reinforcement in the form of experience of an object in the learning environment.

Motivation and learning are two things that influence each other. Learning is a change in behaviour in a manner that is relatively permanent and potentially occurs as result of practice or reinforcement (reinforced practice) based goals to achieve certain goals. Learning motivation is a driving force from within the individual to carry out learning activities to increase knowledge and skills, as well as experience. This motivation grows because there



is a desire to know and understand something, and encourage as well as direct students' learning interests so that they are truly learning and motivated to achieve.

The nature of learning motivation is internal and external encouragement to students who are learning to make changes in behaviour. This has a significant role in individual success in learning. In learning activities, motivation can be said to be the overall driving force in students who give rise to learning activities. It guarantees continuity from learning activities and gives direction to activity learning, so the goals desired by the subject of learning can be achieved. Students who have a strong motivation, will have a lot of energy to carry out learning activities.

Essentially, motivation is a conscious effort to move, direct and maintain one's behaviour so that he is motivated to act to achieve something or certain goals. According to Clayton Alderfer (Nashar, 2004), learning motivation is the tendency of students to undertake activity learning that is driven by a desire to achieve the best possible learning achievements or results. Motivation is seen as a mental drive that directs human behaviour, including learning behaviour. In motivation there is a desire to activate, move, channel and direct attitudes and behaviours in individual learning. According to Biggs and Tefler, 1987 in Dimiyati (2006), to increase learning motivation, we can identify several indicators at certain stages.

Motivational indicators include: 1) Duration of activity; 2) Frequency of activities; 3) Presence on the objectives of the activity; 4) Resilience, tenacity and ability to deal with activities and difficulties to achieve goals; 5) Dedication and sacrifice to achieve goals; 6) Level aspirations to be achieved with the activities carried out; 7) The levels of achievement of the qualifications; and 8) Direction of his attitude towards the target activity. It provides an understanding of learning achievement that is "the results achieved by someone in the learning effort as stated in the report card". Furthermore, that "learning achievement is an evidence of the success of learning or the ability of a student to carry out learning activities according to the weight achieved learning achievement is perfection achieved by someone in thinking, feeling and doing, learning achievement is said to be perfect if it meets three aspects namely: cognitive, affective and psychomotor, on the other hand it is said that achievement is less satisfactory if someone has not able to meet the targets in the three criteria". Based on the above understanding, it can be explained that learning achievement is the level of humanity that is owned by students in accepting, rejecting and assessing the information obtained in the teaching and learning process. One's learning achievement is in accordance with the level of success in learning subject matter, which is expressed in the form of grades or report cards for each field of study after experiencing the learning process. Student achievement can be known after an evaluation is held. The results of the evaluation can show the high or low student achievements.



Research methods

This study uses the research and development method (Borg, n.d.). This method was chosen because of the longitudinal nature of the study, which is gradual and multi-year. The population in this study were teachers at the SD Labschool Campus, UPI Tasikmalaya.

In principle, the implementation of this research follows the model of research and development of Borg (n.d.), which is modified into three stages in the two-year period, as follows. The first stage of planning includes a preliminary study of literature materials related to the implementation of learning and learning models. The results of the preliminary study review are presented in full in chapter two. The second stage comprised the formulation of a hypothetical model of the Socratic method of learning. The formulation of this hypothetical model is based on a literature review of the material carried out in stage one. The results of the hypothetical model development activities were in the form of learning planning standards, learning design standards, learning assessment standards, and learning control standards. The results of the model development activities are reported in full in chapter four. In the third stage, the Model Test carried out a readability or rational test process on the model. In this testing process, a rational allowance was carried out by three weighers. The weighing was carried out by the practitioners and the implementers — in this case, the lecturer — as well as reporting and disseminating the model through journals.

Research result

The results of the study examined empirical data about teacher competency mastery in the learning process, including planning, implementation and evaluation at the Labschool Elementary School in Tasikmalaya City. It was used as a basis and consideration for obtaining, developing and implementing Socratic methods in the learning process. Trends were identified in mastering teacher competencies in the learning process in several elementary schools in Tasikmalaya City.

The results of the study describe empirical data regarding the mastery of teacher competencies in the learning process in several elementary schools in the City of Tasikmalaya. Based on the category of teacher competency, the mastery level in carrying out the learning process shows that most of them are in the planning process at 50.4 per cent, and a small percentage of teacher mastery is in the implementation process at 14.28 per cent. Specifically, the mastery of the teacher in conducting the learning process in several elementary schools in the City of Tasikmalaya can be seen in Table 1.

Table 1. Teacher Mastery in the Learning Process

No	Aspect	F	Proportion
1	Planning	53	50.4
2	Implementation	15	14.28
3	Evaluation	37	35.23
Total		105	100

Table 1 shows that the level of teacher mastery in conducting the learning process is still not optimal in the implementation aspect. It is characterised by the use of learning methods and the suitability of the method with the nature of learning. The use of learning methods has not varied. Efforts to involve and activate students in the learning process have not been applied holistically. The ability to explain material systematically has not represented the learning process to the impact of the students' cognitive, affective and psychomotor aspects. Judging from the proportion of the teacher mastery in conducting the learning process, it spreads from three aspects, including the aspects of planning, evaluation and implementation.

On the aspect of implementation, the research findings indicate that the weaker the mastery in the learning process, it impacts on the weakness of the analysing and the collection of data on the problems to be studied. Associated with Lewin's theory, Lewin emphasises the here and now experience as a starting point for observing and reflecting. After the data is collected and analysed properly, the collected data is used as feedback to modify the handling and choose the right handling in the next step. Furthermore, John Dewey's learning process basically has similarities with Lewin's theory. However, Dewey, in his theory, described how learning to change the impulses, feelings and desires recorded in real experiences becomes a more meaningful action.

Teacher Mastery Trends in the Application of the Socratic Method in the Learning Process in the SD Labschool, Kota Tasikmalaya

Based on the results of the observations and assessments of teachers at the SD Labschool, the application of the Socratic methods that are packaged through the training of trainers shows the teacher's mastery in planning, implementing and evaluating has a significant impact. This is indicated by the planning process, wherein the teacher prepares materials to be given to students properly, correctly and effectively. Furthermore, the teacher considers time management arrangements when starting and ending activities accurately and efficiently, dividing the time to open, core activities and closing activities, controlling time in discussions, and question and answer stimulates students to play an active role. In addition, materials, media and classrooms that are considered and conditional on sistemati,



and RPP which is packaged based on the experimental stages, identification, analysis and generalisations that can represent Asikan to optimally measure students' abilities in cognitive, affective and psychomotor aspects.

The implementation aspect is characterised by: the suitability of the method with the nature of the learning material; the use of varied learning methods; efforts to involve and activate students properly and correctly; the ability to choose and use learning methods; the ability to explain material systematically; the ability to respond and answer questions; clarity and variations in voice intonation; the steps taken by the teacher and students are very clear and systematic; the questions posed are in accordance with the right; form identification questions by referring to core competencies, basic competencies, and clear objectives as a form of caution to develop results student learning optimally; the teacher is able to reflect activities clearly and is able to optimally encourage students to develop the skills and habits of completing their daily activities in schools, communities and in the family environment. Furthermore, besides the mastery of the material, conformity learning between the material discussed with good learning objectives, conformity between the material and the topic set and the relevance of the material to the problems and conditions of the field are clear. In the evaluation aspect is characterised by skilled teachers reflecting and following up on activities well and enables the encouragement of students to think, feel and act from each activity, developing good learning outcomes.

Students' Psychological Dynamics Trends in applying the Socratic Method to the Learning Process in the SD Labschool, Kota Tasikmalaya

The tendency of students' psychological dynamics after being provided with the application of Socratic methods in the learning process shows changes marked by: a) students find problems that interest them; b) through that student experience, they try to understand the problems they are experiencing; c) through a process of reflection on the problem and the results of the reading, research, discussion and other processes, students obtain information needed for problem solving; d) students construct tentative solutions that are possible to solve problems; and e) students choose a possible solution to the problem then test the effectiveness of the solution to the problem at hand. In this way, the students construct and validate their own knowledge.

Thus, the Socratic method can help students construct knowledge and solve problems through the process of gathering information and testing alternative solutions related to the subject matter. The application of the Socratic method in learning is in line with the opinion of John Dewey, who states that the use of scientific methods in learning is the most effective method of solving problems.



Conclusion

The results of the study of the application of the Socratic method in the learning process can be concluded as follows: 1) application of the Socratic method in learning can be used as an alternative in improving student competence in the implementation of the process of learning all subjects; 2) design of the application of the Socratic method in the learning process; and 3) the Socratic method design that has been developed is feasible to be tested in an effort to obtain the application of the Socratic method in the learning process which is more complete and tested for its effectiveness.



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